$X \hookrightarrow \mathcal{N}(\mu, \sigma)$ $\quad$ $T \hookrightarrow \mathcal{N}(0,1)$

$\frac{X-\mu}{\sigma} \hookrightarrow \mathcal{N}(0,1)$ $\quad$ donc $\boxed{T = \frac{X-\mu}{\sigma}}$

$p(X < 1{,}95) = 0{,}58$ $\quad$ $\phi(t) = p(T < t)$

$p(1{,}95 < X < 2{,}10) = 0{,}38$

1 a) $p(X < 2{,}10) = p(X < 1{,}95) + p(1{,}95 < X < 2{,}10)$

$= 0{,}58 + 0{,}38$

$= \boxed{0{,}96}$

b) $\phi\left(\frac{1{,}95-\mu}{\sigma}\right) = p\left(T < \frac{1{,}95-\mu}{\sigma}\right)$

$= p\left(\frac{X-\mu}{\sigma} < \frac{1{,}95-\mu}{\sigma}\right)$

$= p(X - \mu < 1{,}95 - \mu)$

$= p(X < 1{,}95) = \boxed{0{,}58}$

$\phi\left(\frac{2{,}10-\mu}{\sigma}\right) = p\left(T < \frac{2{,}10-\mu}{\sigma}\right)$

$= p\left(\frac{X-\mu}{\sigma} < \frac{2{,}10-\mu}{\sigma}\right) = p(X < 2{,}10) = \boxed{0{,}96}$

c) $p\left(T < \frac{1{,}95-\mu}{\sigma}\right) = 0{,}58$ donc $\frac{1{,}95-\mu}{\sigma} \simeq 0{,}219$

donc $\boxed{1{,}95 - \mu \simeq \underbrace{0{,}219}_{a}\,\sigma}$

$p\left(T < \frac{2{,}10-\mu}{\sigma}\right) = 0{,}96$ donc $\frac{2{,}10-\mu}{\sigma} \simeq 1{,}7506$

$\boxed{2{,}10 - \mu \simeq 1{,}7506\,\sigma}$

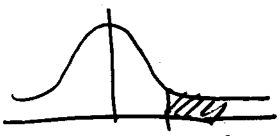
On résout : $\begin{cases} 0{,}219\,\sigma + \mu = 1{,}95 \\ 1{,}7506\,\sigma + \mu = 2{,}10. \end{cases}$

$L_2 - L_1$: $1{,}5487\,\sigma = 0{,}15$ donc $\sigma = \frac{0{,}15}{1{,}5487}$ $\boxed{\sigma \simeq 0{,}10}$

et $\mu = 1{,}95 - 0{,}219\,\sigma \simeq 1{,}93$ $\quad$ $\boxed{\mu \simeq 1{,}93}$

3) $\mu = 1{,}9$ et $\sigma = 0{,}1$

$p(X > 2{,}15) = 0{,}5 - p(1{,}9 < X < 2{,}15) \simeq 0{,}006$.



1,9 2,15

donc $\boxed{0{,}6\ \%}$ de la population pourra utiliser ce médicament.

donc sur 100.000 personnes, cela correspond à $\boxed{600 \text{ personnes}}$